BioMap and Living Waters

Guiding Land Conservation for Biodiversity in Massachusetts

Core Habitats of Gill

This report and associated map provide information about important sites for biodiversity conservation in your area.

This information is intended for conservation planning, and is not intended for use in state regulations.

Produced by:

Natural Heritage & Endangered Species Program
Massachusetts Division of Fisheries and Wildlife
Executive Office of Environmental Affairs
Commonwealth of Massachusetts

Produced in 2004

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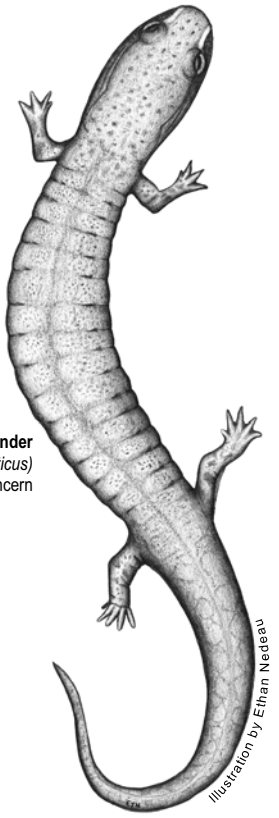
* Depending on the location of Core Habitats, your city or town may not have all of these sections.



Spring Salamander
(Gyrinophilus porphyriticus)
Species of Special Concern

Funding for this project was made available by the Executive Office of Environmental Affairs, contributions to the Natural Heritage & Endangered Species Fund, and through the State Wildlife Grants Program of the US Fish & Wildlife Service.

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For more information on rare species and natural communities, please see our fact sheets online at ***www.nhesp.org***

BioMap and Living Waters:
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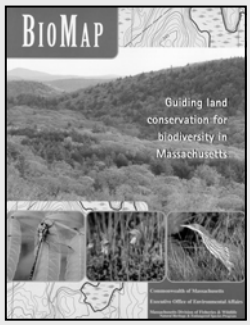
Introduction

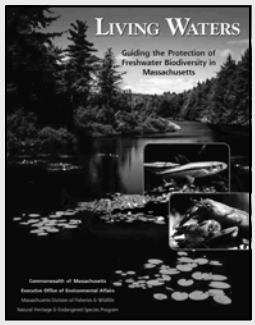
In this report, the Natural Heritage & Endangered Species Program provides you with site-specific biodiversity information for your area. Protecting our biodiversity today will help ensure the full variety of species and natural communities that comprise our native flora and fauna will persist for generatons to come.

The information in this report is the result of two statewide biodiversity conservation planning projects, ***BioMap*** and ***Living Waters***. The goal of the BioMap project, completed in 2001, was to identify and delineate the most important areas for the long-term viability of terrestrial, wetland, and estuarine elements of biodiversity in Massachusetts. The goal of the Living Waters project, completed in 2003, was to identify and delineate the rivers, streams, lakes, and ponds that are important for freshwater biodiversity in the Commonwealth. These two conservation plans are based on documented observations of rare species, natural communities, and exemplary habitats.

What is a Core Habitat?

Both BioMap and Living Waters delineate ***Core Habitats*** that identify the most critical sites for biodiversity conservation across the state. Core Habitats represent habitat for the state's most viable rare plant and animal populations and include exemplary natural communities and aquatic habitats. Core Habitats represent a wide diversity of rare species and natural communities (see Table 1), and these areas are also thought to contain virtually all of the other described species in Massachusetts. Statewide, BioMap Core Habitats encompass 1,380,000 acres of uplands and wetlands, and Living Waters identifies 429 Core Habitats in rivers, streams, lakes, and ponds.





Get your copy of the ***BioMap*** and ***Living Waters*** reports! Contact Natural Heritage at 508-792-7270, Ext. 200 or email natural.heritage@state.ma.us. Posters and detailed technical reports are also available.

Core Habitats and Land Conservation

One of the most effective ways to protect biodiversity for future generations is to protect Core Habitats from adverse human impacts through land conservation. For Living Waters Core Habitats, protection efforts should focus on the ***riparian areas***, the areas of land adjacent to water bodies. A naturally vegetated buffer that extends 330 feet (100 meters) from the water's edge helps to maintain cooler water temperature and to maintain the nutrients, energy, and natural flow of water needed by freshwater species.

In Support of Core Habitats

To further ensure the protection of Core Habitats and Massachusetts' biodiversity in the long-term, the BioMap and Living Waters projects identify two additional areas that help support Core Habitats.

In BioMap, areas shown as ***Supporting Natural Landscape*** provide buffers around the Core Habitats, connectivity between Core Habitats, sufficient space for ecosystems to function, and contiguous undeveloped habitat for common species. Supporting Natural Landscape was

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generated using a Geographic Information Systems (GIS) model, and its exact boundaries are less important than the general areas that it identifies. Supporting Natural Landscape represents potential land protection priorities once Core Habitat protection has been addressed.

In Living Waters, ***Critical Supporting Watersheds*** highlight the immediate portion of the watershed that sustains, or possibly degrades, each freshwater Core Habitat. These areas were also identified using a GIS model. Critical Supporting Watersheds represent developed and undeveloped lands, and can be quite large. Critical Supporting Watersheds can be helpful in land-use planning, and while they are not shown on these maps, they can be viewed in the Living Waters report or downloaded from www.mass.gov/mgis.

Understanding Core Habitat Species, Community, and Habitat Lists

What's in the List?

Included in this report is a list of the species, natural communities, and/or aquatic habitats for each Core Habitat in your city or town. The lists are organized by Core Habitat number.

For the larger Core Habitats that span more than one town, the species and community lists refer to the entire Core Habitat, not just the portion that falls within your city or town. For a list of all the state-listed rare species within your city or town's boundary, whether or not they are in Core Habitat, please see the town rare species lists available at www.nhesp.org.

The list of species and communities within a Core Habitat contains only the species and natural communities that were explicitly included in a given BioMap or Living Waters Core Habitat. Other rare species or examples of other natural communities may fall within the Core Habitat, but for various reasons are not included in the list. For instance, there are a few rare species that are omitted from the list or summary because of their particular sensitivity to the threat of collection. Likewise, the content of many very small Core Habitats are not described in this report or list, often because they contain a single location of a rare plant

Table 1. The number of rare species and types of natural communities explicitly included in the BioMap and Living Waters conservation plans, relative to the total number of native species statewide.

BioMap

	Species and Verified Natural Community Types	
Biodiversity Group	**Included in BioMap**	**Total Statewide**
Vascular Plants	246	1,538
Birds	21	221 breeding species
Reptiles	11	25
Amphibians	6	21
Mammals	4	85
Moths and Butterflies	52	An estimated 2,500 to 3,000
Damselflies and Dragonflies	25	An estimated 165
Beetles	10	An estimated 2,500 to 4,000
Natural Communities	92	> 105 community types

Living Waters

	Species	
Biodiversity Group	**Included in Living Waters**	**Total Statewide**
Aquatic Vascular Plants	23	114
Fishes	11	57
Mussels	7	12
Aquatic Invertebrates	23	An estimated > 2500

species. Some Core Habitats were created for suites of common species, such as forest birds, which are particularly threatened by habitat fragmentation. In these cases, the individual common species are not listed.

What does 'Status' mean?

The Division of Fisheries and Wildlife determines a status category for each rare species listed under the Massachusetts Endangered Species Act, M.G.L. c.131A, and its implementing regulations, 321 CMR 10.00. Rare species are categorized as Endangered, Threatened, or of Special Concern according to the following:

- ***Endangered*** species are in danger of extinction throughout all or a significant portion of their range or are in danger of extirpation from Massachusetts.
- ***Threatened*** species are likely to become Endangered in Massachusetts in the foreseeable future throughout all or a significant portion of their range.
- ***Special Concern*** species have suffered a decline that could threaten the species if allowed to continue unchecked or occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become Threatened in Massachusetts.

In addition, the Natural Heritage & Endangered Species Program maintains an unofficial ***watch list*** of plants that are tracked due to potential conservation interest or concern, but are not regulated under the Massachusetts Endangered Species Act or other laws or regulations. Likewise, described natural communities are not regulated any laws or regulations, but they can help to identify ecologically important areas that are worthy of protection. The status of natural communities reflects the documented number and acreages of each community type in the state:

- ***Critically Imperiled*** communities typically have 5 or fewer documented sites or have very few remaining acres in the state.
- ***Imperiled*** communities typically have 6-20 sites or few remaining acres in the state.
- ***Vulnerable*** communities typically have 21-100 sites or limited acreage across the state.
- ***Secure*** communities typically have over 100 sites or abundant acreage across the state; however excellent examples are identified as Core Habitat to ensure continued protection.

Legal Protection of Biodiversity

BioMap and Living Waters present a powerful vision of what Massachusetts would look like with full protection of the land that supports most of our biodiversity. To create this vision, some populations of state-listed rare species were deemed more likely to survive over the long-term than others.

Regardless of their potential viability, all sites of state-listed species have full legal protection under the Massachusetts Endangered Species Act (M.G.L. c.131A) and its implementing regulations (321 CMR 10.00). Habitat of state-listed wildlife is also protected under the Wetlands Protection Act Regulations (310 CMR 10.37 and 10.59). The ***Massachusetts Natural Heritage Atlas*** shows **Priority Habitats**, which are used for regulation under the Massachusetts Endangered Species Act and Massachusetts Environmental Policy Act (M.G.L. c.30) and **Estimated Habitats**, which are used for regulation of rare wildlife habitat under the Wetlands Protection Act. For more information on rare species regulations, see the *Massachusetts Natural Heritage Atlas*, available from the Natural Heritage & Endangered Species Program in book and CD formats.

BioMap and Living Waters are conservation planning tools and do not, in any way, supplant the Estimated and Priority Habitat Maps which have regulatory significance. Unless and until the combined BioMap and Living Waters vision is fully realized, we must continue to protect all populations of our state-listed species and their habitats through environmental regulation.

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Understanding Core Habitat Summaries

Following the BioMap and Living Waters Core Habitat species and community lists, there is a descriptive summary of each Core Habitat that occurs in your city or town. This summary highlights some of the outstanding characteristics of each Core Habitat, and will help you learn more about your city or town's biodiversity. You can find out more information about many of these species and natural communities by looking at specific ***fact sheets*** at www.nhesp.org.

Next Steps

BioMap and Living Waters were created in part to help cities and towns prioritize their land protection efforts. While there are many reasons to conserve land – drinking water protection, recreation, agriculture, aesthetics, and others – BioMap and Living Waters Core Habitats are especially helpful to municipalities seeking to protect the rare species, natural communities, and overall biodiversity within their boundaries. Please use this report and map along with the rare species and community fact sheets to appreciate and understand the biological treasures in your city or town.

Protecting Larger Core Habitats

Core Habitats vary considerably in size. For example, the average BioMap Core Habitat is 800 acres, but Core Habitats can range from less than 10 acres to greater than 100,000 acres. These larger areas reflect the amount of land needed by some animal species for breeding, feeding, nesting, overwintering, and long-term survival. Protecting areas of this size can be very challenging, and requires developing partnerships with neighboring towns.

Prioritizing the protection of certain areas within larger Core Habitats can be accomplished through further consultation with Natural Heritage Program biologists, and through additional field research to identify the most important areas of the Core Habitat.

Additional Information

If you have any questions about this report, or if you need help protecting land for biodiversity in your community, the Natural Heritage & Endangered Species Program staff looks forward to working with you.

Contact the Natural Heritage & Endangered Species Program:

by Phone *508-792-7270, Ext. 200*

by Fax: *508-792-7821*

by Email: *natural.heritage@state.ma.us*.

by Mail: *North Drive*
Westborough, MA 01581

The GIS datalayers of BioMap and Living Waters Core Habitats are available for download from MassGIS: www.mass.gov/mgis

Check out www.nhesp.org for information on:

- Rare species in your town
- Rare species fact sheets
- BioMap and Living Waters projects
- Natural Heritage publications, including:
  - Field guides
  - Natural Heritage Atlas, and more!

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BioMap: Species and Natural Communities

Gill

Core Habitat BM193

Plants

Common Name	Scientific Name	Status
Small Site for Rare Plant		

Core Habitat BM231

Natural Communities

Common Name	Scientific Name	Status
Calcareous Rock Cliff Community		Vulnerable
Calcareous Talus Forest/Woodland		Vulnerable
High-Terrace Floodplain Forest		Imperiled
Major-River Floodplain Forest		Imperiled

Plants

Common Name	Scientific Name	Status
Gray's Sedge	*Carex grayi*	Threatened
Michaux's Sandwort	*Minuartia michauxii*	Threatened
Putty-Root	*Aplectrum hyemale*	Endangered
Red Mulberry	*Morus rubra*	Endangered
White Adder's-Mouth	*Malaxis monophyllos var brachypoda*	Endangered

Invertebrates

Common Name	Scientific Name	Status
Cobra Clubtail	*Gomphus vastus*	Special Concern

Vertebrates

Common Name	Scientific Name	Status
Bald Eagle	*Haliaeetus leucocephalus*	Endangered
Jefferson Salamander	*Ambystoma jeffersonianum*	Special Concern
Marbled Salamander	*Ambystoma opacum*	Threatened

Spotted Turtle	*Clemmys guttata*	Special Concern

Core Habitat BM415

Plants

Common Name	Scientific Name	Status
Small Site for Rare Plant		

Core Habitat BM423

Plants

Common Name	Scientific Name	Status
Green Rock-Cress	*Arabis missouriensis*	Threatened
Michaux's Sandwort	*Minuartia michauxii*	Threatened
Sandbar Cherry	*Prunus pumila var depressa*	Threatened
Tufted Hairgrass	*Deschampsia cespitosa ssp glauca*	Endangered

Core Habitat BM435

Natural Communities

Common Name	Scientific Name	Status
Inland Acidic Pondshore/Lakeshore		Secure
Pitch Pine - Scrub Oak Community		Imperiled

Plants

Common Name	Scientific Name	Status
Nantucket Shadbush	*Amelanchier nantucketensis*	Special Concern
Northeastern Bulrush	*Scirpus ancistrochaetus*	Endangered
Pygmyweed	*Crassula aquatica*	Threatened

Invertebrates

Common Name	Scientific Name	Status
Barrens Buckmoth	*Hemileuca maia*	Special Concern
Barrens Metarranthis Moth	*Metarranthis apiciaria*	Endangered

Blueberry Sallow	*Apharetra dentata*	----------
Frosted Elfin	*Callophrys irus*	Special Concern
New Jersey Tea Inchworm	*Apodrepanulatrix liberaria*	Endangered
Oak Hairstreak	*Satyrium favonius*	Special Concern
Pine Barrens Itame	*Itame sp. 1 near inextricata*	Special Concern
Pine Barrens Zale	*Zale sp. 1 near lunifera*	Special Concern
Pine Barrens Zanclognatha	*Zanclognatha martha*	Threatened
Pink Sallow	*Psectraglaea carnosa*	Special Concern
Sandplain Euchlaena	*Euchlaena madusaria*	Special Concern
Slender Clearwing Sphinx Moth	*Hemaris gracilis*	Special Concern
Tule Bluet	*Enallagma carunculatum*	Special Concern
Williams' Tigermoth	*Grammia williamsii*	Watch Listed

Vertebrates

Common Name	Scientific Name	Status
Bald Eagle	*Haliaeetus leucocephalus*	Endangered
Eastern Box Turtle	*Terrapene carolina*	Special Concern
Grasshopper Sparrow	*Ammodramus savannarum*	Threatened

Core Habitat BM461

Plants

Common Name	Scientific Name	Status
Small Site for Rare Plant		

BioMap: Core Habitat Summaries

Gill

Core Habitat BM231

This Core Habitat, located along the state's northern section of the Connecticut River, contains a variety of unusual natural communities that together support a diversity of plants and animals. This Core Habitat is notable for the rare Cobra Clubtail dragonfly that is not known from anywhere else in the state. It also provides perching and foraging habitat for Bald Eagles, and upland habitats for two rare salamanders. Several rare plant species are found here, many of which are associated with calcareous cliff communities.

Natural Communities

This Core Habitat contains a large and species-rich Calcareous Rock Cliff and Talus Forest that are associated with many rare plant species. Calcareous Rock Cliffs are sparsely vegetated cliff communities. Unusual, highly specialized plants and ferns grow in rocks and ledges in the calcium-rich cliff face. This type of cliff community has more species diversity than Acidic Rock Cliffs. Meanwhile, Calcareous Talus Forest communities develop on boulder strewn slopes below certain cliffs, with scattered trees, shrubs, vines, and ferns. There is often a gradient of vegetation density as the slope changes, with more trees on the lower slope. This Core Habitat also contains a Major-River Floodplain Forest of good quality, which has a well-developed canopy of mature trees and only moderate levels of disturbances. Abutting the Major-River Floodplain Forest is a very uncommon type of natural community, a well-developed High-Terrace Floodplain Forest. High-Terrace Floodplain Forests are deciduous hardwood forests that occur along riverbanks, above the zone of annual flooding. Although they do not flood annually, they flood often enough for the soil to be moderately enriched.

Plants

Several rare plant populations are associated with the Calcareous Rock Cliff community overlooking the river, including Michaux's Sandwort and Red Mulberry. Nearby wetland areas support additional rare plant species.

Invertebrates

This Core Habitat includes an 8-km stretch of the Connecticut River between Gill and Northfield that is habitat for the rare Cobra Clubtail dragonfly, a species that requires large, sand-bottomed rivers and is not known to occur anywhere in Massachusetts but along the northern portion of the Connecticut River. Virtually all the Cobra Clubtail's habitat here appears to be unprotected. Protecting this species' habitat along the river represents one of the greater conservation challenges in Massachusetts. Pollution and hydrologic alterations originating upstream, downstream, or within this Core Habitat are major threats.

Vertebrates

This Core Habitat encompasses partially forested riverbank along the western shore of the Connecticut River that provides undisturbed perching and foraging habitat for wintering and non-breeding Bald Eagles. It also includes upland forest dominated by eastern hemlock and red maple with scattered vernal pools, near and including Stacy Mountain in Gill. Vernal pools and adjacent forests provide habitat for Marbled and Jefferson Salamanders. Spotted Turtles are present here as well. Over half this area is already protected as conservation land.

BioMap: Core Habitat Summaries

Gill

Core Habitat BM423

Plants

Dry traprock ridges, exposed rivershore bedrock, and shoreline gravel and cobble provide habitat for a suite of rare plant species, including Sandbar Cherry, Green Rock-Cress, Michaux's Sandwort, and a rare variety of Tufted Hairgrass.

Core Habitat BM435

This large Core Habitat encompasses several distinct habitats, from the Connecticut River and its shores that support Bald Eagles and rare plant species, to the unusual habitats of Montague Plain. Montague Plain is known for its large and high-quality example of the globally rare Pitch Pine-Scrub Oak Community, particularly because this type of community is uncommon this far inland from the coast. The area supports several rare species of moths and butterflies, globally rare plant species, and key populations of Eastern Box Turtles and Whip-poor-wills.

Natural Communities

This Core Habitat contains a large, unfragmented, high-quality Pitch Pine-Scrub Oak community. Pitch Pine-Scrub Oak communities are globally rare, fire dependant shrub-dominated communities, with scattered to dense trees. They provide habitat for many rare species, and develop on dry, poor soils, usually made up primarily of sand. This typically coastal community is uncommon in inland areas. This is the state's largest inland occurrence of this community type and includes many of the associated rare plants and invertebrates typically found in southeastern Massachusetts.

Plants

Two interesting rare plant species are located within this Core Habitat. The westernmost population of the globally rare Nantucket Shadbush, otherwise found in Massachusetts only on Cape Cod and the islands, is growing within a burned-over part of this Core Habitat. A population of the Threatened Pygmyweed, a small plant that forms sprawling mats along shores, is also found in one section of this Core Habitat.

Invertebrates

This Core Habitat supports no fewer than 13 rare species of moths and butterflies, some of which are otherwise restricted to the Coastal Plain. Rare butterflies and moths inhabiting this Core Habitat include barrens species such as the Frosted Elfin butterfly, the Barrens Buckmoth, and the New Jersey Tea Inchworm, as well as heathland species including the Slender Clearwing Sphinx moth and the Pink Sallow moth.

BioMap: Core Habitat Summaries

Gill

Vertebrates

This is a diverse Core Habitat that encompasses three distinct areas of habitat. The Connecticut River and forested shorelines at Barton Cove in Turners Falls and Gill provide nesting, feeding, and perching habitat for Bald Eagles. Human-maintained grasslands at the Turners Falls Airport provide habitat for a small nesting population of Grasshopper Sparrows. Pitch pine - scrub oak barrens on the Montague Plains provide habitat for a significant population of Eastern Box Turtles, as well as birds that are characteristic of barrens habitat, including arguably the largest breeding population of Whip-poor-wills remaining in western or central Massachusetts. Because of its relatively large size and barrens habitats, the Montague Plains may be one of the best areas in western or central Massachusetts on which to focus long-term conservation efforts for Eastern Box Turtles. Much of the Montague Plains is protected within the Montague Wildlife Management Area.

Living Waters: Species and Habitats

Gill

Core Habitat LW354

Exemplary Habitats

Common Name	Scientific Name	Status
Invertebrate Habitat		----------

Plants

Common Name	Scientific Name	Status
American Waterwort	*Elatine americana*	Endangered
Water Star-grass	*Heteranthera dubia*	Watch Listed

Invertebrates

Common Name	Scientific Name	Status
Brook Floater	*Alasmidonta varicosa*	Endangered
Creeper	*Strophitus undulatus*	Special Concern
Eastern Pondmussel	*Ligumia nasuta*	Special Concern
Triangle Floater	*Alasmidonta undulata*	Special Concern
Yellow Lampmussel	*Lampsilis cariosa*	Endangered

Fishes

Common Name	Scientific Name	Status
Burbot	*Lota lota*	Special Concern
Eastern Silvery Minnow	*Hybognathus regius*	Special Concern
Shortnose Sturgeon	*Acipenser brevirostrum*	Endangered

Core Habitat LW424

Exemplary Habitats

Common Name	Scientific Name	Status
Invertebrate Habitat		----------

Living Waters: Species and Habitats

Gill

Invertebrates

Common Name	Scientific Name	Status
Eastern Pearlshell	*Margaritifera margaritifera*	----------

Fishes

Common Name	Scientific Name	Status
Eastern Silvery Minnow	*Hybognathus regius*	Special Concern

Living Waters: Core Habitat Summaries

Gill

Core Habitat LW354

This middle section of the Connecticut River flows through a mix of developed, agricultural, and forested lands, and is bounded by the Holyoke dam to the south, and the Tuners Falls dam to the north. The river provides unparalleled freshwater habitats for fishes and invertebrates in Massachusetts.

The river is of conservation significance because it supports the only known occurrence of the Endangered Yellow Lampmussel in Massachusetts. This freshwater mussel lives in large rivers, and was recently rediscovered in the mainstem of the Connecticut River at depths of up to fifteen feet. In the past, the Connecticut River was known to support eleven mussel species, and today there are nine species known from the river.

The Bachelor Brook tributary in Granby and South Hadley also supports a very diverse assemblage of freshwater mussels, including eight of the twelve species found in Massachusetts. Four of these species are state-listed as rare: the Endangered Brook Floater, the Triangle Floater, the Eastern Pondmussel, and the Creeper mussel. These species have generally been found in moderate to slow flowing stretches of the brook below rocky riffles in either mixed sand and gravel runs or in sandy pools. The Brook Floater in particular is believed to be sensitive to low oxygen, pollution, and silt, and is known from only five water bodies in the state. There is some evidence that this small Brook Floater population is reproducing, making this a particularly important site.

Stony Brook in South Hadley supports five freshwater mussel species, including the rare Creeper mussel. This species is found scattered along the lower reach of Stony Brook, near the confluence with the Connecticut River, as it flows slowly over loose sands, gravels, and clays. There are only nineteen Core Habitats for the Creeper, which represent the water bodies that support the most robust populations of this rare mussel across the state.

From Holyoke northward, the Connecticut River mainstem is also home to ten species of state-listed dragonflies, the majority of which are found only in large rivers. The tributaries of the Connecticut River are important habitat for the state-listed dragonflies found in smaller rivers. The Connecticut River and the Connecticut River Valley provide a northward corridor for more southerly species, thus contributing a unique fauna to Massachusetts.

In addition to invertebrate habitats, the Connecticut River supports a diversity of fish habitats. The stretch of the Connecticut River in Montague is an important spawning (breeding) area for the state- and federally-Endangered Shortnose Sturgeon. This long-lived, prehistoric-looking fish is particularly susceptible to habitat degradation and mortality because it does not reach maturity until it is at least 5 - 10 years old. The Shortnose Sturgeon moves many miles during its life cycle, using other parts of the Connecticut River at different times of the year. The stretch of the river from Montague and Deerfield down to Hatfield and Hadley is important feeding and overwintering habitat.

In Hatfield, Hadley, and Northampton, a portion of the Connecticut River and its associated tributaries were delineated as Core Habitat for the Eastern Silvery Minnow, a fish Species of Special Concern. This species is only known from the Connecticut River and lower Deerfield

River in Massachusetts. It spawns in backwaters, laying eggs directly on the river bottom in areas where the emergent vegetation provides cover. Siltation, pollution, and water level changes threaten this species.

The stretch of the Connecticut River in Gill, Greenfield, and Montague downstream from the Turners Falls Dam is presumed habitat for Burbot, a fish Species of Special Concern. Burbot also likely inhabits the Connecticut River in the vicinity of the Fort River confluence in Hadley. This enigmatic fish, a freshwater member of the cod family, has been found at only a few locations in Massachusetts. Not much is known about its life history in the state, although it may live mostly in deep pools of the Connecticut River.

Shallow areas in the Connecticut River north of the Sunderland bridge support a population of the diminutive American Waterwort, an Endangered aquatic plant. This area also supports the uncommon Water Star-Grass, a plant with tiny yellow flowers and long grass-like leaves. Native freshwater plants like these species are an important component of aquatic ecosystems. They provide habitat and nutrition for fish and invertebrates, and they add oxygen to the water through photosynthesis. Permanent protection of the riparian land adjacent to this Core Habitat, and careful management of runoff from developed and agricultural areas will help ensure the continued quality of this key Core Habitat in Massachusetts.

Core Habitat LW424

The Connecticut River and its tributaries that flow through less developed land are key Core Habitats in Massachusetts. This section of the Connecticut River begins at the state border and continues south to the Turners Falls dam. The Connecticut River itself is home to ten species of state-listed dragonflies, the majority of which are found only in large rivers. The Connecticut River tributaries also are important habitat for state-listed dragonflies found in smaller rivers. The Connecticut River and the Connecticut River Valley provide a northward corridor for more southerly species, thus contributing a unique fauna to Massachusetts' biodiversity.

In Gill and Northfield, a portion of the Connecticut River and its associated tributaries are also habitat for the Eastern Silvery Minnow, a fish that is state-listed as a Species of Special Concern. This species is only known from the Connecticut River and lower Deerfield River in Massachusetts. It requires backwaters for spawning, where it lays eggs directly on the river bottom in areas where emergent vegetation provides cover. Siltation, pollution, and water level changes threaten this species.

A tributary to the river, Dry Brook, also supports a dense population of the Eastern Pearlshell, a species of freshwater mussel known from only 22 water bodies in Massachusetts. This species inhabits streams and rivers that are cool and clean enough to support its trout fish hosts. Protection of the remaining undeveloped riparian areas along this Core Habitat will help maintain its quality.

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Natural Heritage &
Endangered Species Fund

To learn more about the Natural Heritage & Endangered Species Program and the Commonwealth's rare species, visit our web site at: www.nhesp.org.